DETAILED ACTION

Response to Amendment

1. The amendment, field 8/31/2009, has been entered and made of record. Claims 1-5 are pending in the application.

Response to Arguments

1. Applicant's arguments with respect to claims 1-5 have been considered but are moot in view of the new ground(s) of rejection. However, the examiner maintains the Trevino reference in rejection, but it is Trevino's prior art figures which are used in rejection for the reasons set forth below.

Claim Rejections - 35 USC § 103

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stark (US 2002/0186312) in view of Trevino (US # 6,856,349) and further in view of the Japanese Publication to Ogata (Japanese Publication Number: H03-027684).

As to claim 1, Stark teaches a solid-state image pickup apparatus (Figure 6), comprising: a photo-detecting section having a plurality of pixels which are two-dimensionally arranged in M rows and N columns (M and N are integers of two or more) (Figure 6, unit cell array "102") and each of which includes a photodiode (Figure 1, "PD") and a cell switch (Figure 1, "TR"), and N lines L_N provided in accordance with the respective columns of said pixels such that said associated photodiodes in said pixels that constitute the nth column (n is an arbitrary integer of one or more but N or less) are respectively connected to a line Ln via said cell switch corresponding to said associated photodiode (Figure 1, column line "12"; Figure 6, Col_1 - Col_N); an output section (Figure 6, video mux "110") which accumulates an electric charge that flows in through the line Ln into a readout circuit Rn (Figure 9, sense amplifiers "SA") and which outputs a voltage according to the amount of the accumulated electric charge from said readout circuit Rn via a switch SWn (Figure 1, switch "S"; [0040] – [0042]), said output section being arranged at a first-row side or an Mth-row side of said photodetecting section and including N readout circuits R_1 to R_N and N switches SW_1 to SW_N (Figure 9); a row selecting section (Figure 6, left line decoder "104") which outputs a row selecting signal $S_{A,m}$ for an instruction on switching of said cell switches in said pixels that constitute the mth row (m is an arbitrary integer of one or more but M or less) of said photo-detecting section (Figure 6, $LnRd_1$ - $LnRd_M$), said row selecting section being arranged at a first-row side or an Mth-row side of said photodetecting

section (Figure 6); a column selecting section (Figure 6, column decoder "124") that outputs a column selecting signal $S_{B,n}$ for an instruction on switching of said switch SWn in said output section (Figure 9; [0144]), said column selecting section being arranged at a first-row side or an Mth-row side of said photodetecting section (Figure 6). The claim differs from Stark in that it further requires a waveform shaping means for shaping, for each of the rows longer in distance from said row selecting section than a predetermined distance out of the M rows of said photodetecting section, a waveform of the row selecting signal $S_{A,m}$ outputted from said row selecting section and which inputs a shaped row selecting signal $S_{A,m}$ into said cell switches of said pixels that constitute the mth row of said photodetecting section, wherein the waveform shaping means shapes the row selecting signal in accordance with a timing of a gate signal provided as an input signal in the waveform shaping means. The claim further differs from Stark in that it further requires that the row selecting section be configured so as to be substantially parallel with the column selecting.

In the same field of endeavor, Trevino teaches a prior art method of controlling readout of a CMOS imaging array (Figure 1), wherein a row decoder (not shown) outputs a signal (Figure 1, access 0-N) to a waveform shaping circuit (Figure 3, AND gate "8"). An auxiliary signal is output to the other input of the waveform shaping circuit (Figure 1, rowgen "12"), which outputs a wave-formed shaped signal to activate the pixels in a specified row (Figure 2, row0 – rowN and access 0-N). In light of the teaching of Trevino, it would have been obvious to include the waveform shaping circuit along with the auxiliary signal in the apparatus of Stark, because an artisan of ordinary skill in the art would recognize that this would provide uniform

exposure time control as well as precise read and row select signals by keeping the access signal high throughout the reading and row selecting sequences.

Further in the same field of endeavor, Ogata teaches an image sensor including a horizontal scanning circuit and a vertical scanning circuit arranged substantially parallel to each other (see Abstract Figure and CONSTITUTION, Lines 1-12). In light of the teaching of Ogata, it would have been obvious to one of ordinary skill in the art to arrange the row decoder and column decoder of Stark in the manner described in Ogata, because an artisan of ordinary skill in the art would recognize that this would allow reduce the longitudinal and lateral size of the image sensor chip by the width of the scanning circuits (see Ogata, Abstract, CONSTITUTION, Lines 12-15).

Remarks about the rejection of claim 1: Considering Figure 3 of the present application, the examiner submits that the signal, $S_{A,1}$, is not shaped in its strictest definition. What the examiner discerns is happening is that the width of the pulse of signal is $S_{A,1}$, is shortened. Since $S_{A,1}$ is high throughout the gate signal's transition from low to high and from high to low, signal, $S'_{A,1}$, mimics the gate signal, thereby obtaining a shorter width not a different shape. This is precisely what is occurring in Trevino's Figure 2. Access signal 0-N (analogous to the signal $S_{A,1}$) is high throughout rowgen's (analogous to the gate signal) transition from low to high and from high to low. Consequently, the signal that is input to the row of pixels (analogous to the signal $S'_{A,1}$) mimics the rowgen signal, which has a shorter pulse than the access signal (i.e. waveform shaped as termed by the specification).

As to claim **2**, Stark, as modified by Trevino and Ogata, teaches a solid-state image pickup apparatus according to claim 1, wherein said waveform shaping means shapes, for each of all rows of said photodetecting section, a waveform of the row selecting signal $S_{A,m}$ outputted from said row selecting section (see Trevino, Figure 2), and inputs a shaped row selecting signal $S_{A,m}$ into said cell switches of said pixels that constitute the mth row of said photodetecting section (see Stark, Figure 1; see Trevino, Figure 1).

As to claim **3**, Stark, as modified by Trevino and Ogata, teaches a solid-state image pickup apparatus according to claim 1, wherein said waveform shaping means is arranged, for each row of said photodetecting section, at either one end side of the row (see Stark, Figure 6, left line decoder "104"; see Trevino, Figure 3; see Ogata, Abstract Figure).

As to claim **4**, Stark, as modified by Trevino and Ogata, teaches a solid-state image pickup apparatus according to claim 1, wherein said waveform shaping means is arranged, for each row of said photodetecting section, at both end sides of the row (see Stark, Figure 6, left line decoder "104" and right line decoder "106"; see Trevino, Figure 1; *{The examiner submits that the addition of the AND gate of Trevino would result in the gates being provided for both the left and right line decoder; thus, locating the waveform shaping circuit on both sides of the row.}*).

As to claim **5**, Stark, as modified by Trevino and Ogata, teaches a solid-state image pickup apparatus according to claim 1, wherein said waveform shaping means includes a logic circuit that is inputted with the row selecting signal $S_{A,m}$ outputted from said row selecting section and that outputs a logic signal according to a level of the inputted row selecting signal

$S_{A,m}$ as a waveform-shaped row selecting signal $S_{A,m}$ (see Trevino, Figure 1, AND gate "38"; Figure 2, row0 - rowN).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANTHONY J. DANIELS whose telephone number is (571)272-7362. The examiner can normally be reached on 8:00 A.M. - 5:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on (571) 272-7564. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AD
11/14/2009

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